HALEY & ALDRICH

380

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

WELL DESTRUCTION REPORT

GROUNDWATER MONITORING WELLS TMW-1, TMW-2 AND TMW-9

To: **Brian Mossman**
Boeing Realty Corporation
4900 Conant Street, Building 1
Long Beach, California 90808

From: **Haley & Aldrich**

Date: **3 December 2004**

Subject: **Well Destruction Report, Groundwater Monitoring Wells TMW-1, TMW-2, and TMW-9, Boeing Realty Corporation, Former C-6 Facility, Los Angeles, California**

Haley & Aldrich, Inc. (Haley & Aldrich) is herein providing this groundwater monitoring well destruction report to summarize the destruction and final laboratory results from groundwater monitoring wells TMW-1, TMW-2, and TMW-9, located in Lot 8 of Parcel at the Boeing Realty Corporation's (BRC's) Former C-6 Facility in Los Angeles, California (Site). The wells were closed due to location conflicts with new building construction. The work was conducted in accordance with a letter entitled *"Abandonment of Four Groundwater Monitoring Wells,"* dated 13 October 2004, and approved by the Los Angeles Regional Water Quality Control Board (LARWQCB) on 26 October 2004.

INTRODUCTION

Groundwater monitoring wells TMW-1, TMW-2, and TMW-9 were installed as temporary wells in June 1998 by Kennedy Jenks Consultants as part of a Site-wide groundwater monitoring program. The purpose of these temporary groundwater monitoring wells was to facilitate sampling and measurement of groundwater conditions in the Bellflower Aquitard. The boring and well construction logs are included as Appendix A. Table 1 summarizes selected well construction information.

Table 1
Groundwater Monitoring Well Construction Information

Well No.	Boring Total Depth (feet)	Screen Depth Interval (feet)	Casing Diameter (inches)	Casing Type	Date Installed
TMW-1	86	61-81	2	Schedule 40 PVC	6/28/98
TMW-2	87	62-82	2	Schedule 40 PVC	6/28/98
TMW-9	86	61-81	2	Schedule 40 PVC	6/30/98

The LARWQCB is the lead agency for environmental activities at the Site; the County of Los Angeles, Department of Health Services (DHS) is responsible for the permitting of groundwater monitoring wells. Haley & Aldrich, submitted a monitoring well destruction service request application on 22 October 2004, notifying the DHS of the destruction of groundwater monitoring wells TMW-1, TMW-2, and TMW-9. A copy of the permit is included as Appendix B. The three monitoring wells were destroyed on 3rd and 4th of November 2004.

FIELD ACTIVITIES

The scope of work for the destruction of monitoring wells TMW-1, TMW-2, and TMW-9 consisted of monitoring and sampling groundwater, submitting the groundwater samples to the laboratory for analysis, and proper well destruction. These tasks are discussed below.

Groundwater Monitoring and Sampling

The groundwater monitoring wells were gauged immediately prior to destruction on the 3rd and 4th of November 2004. The water levels were gauged against the top of the well casing to the nearest 0.01-foot using an electronic water level indicator (Table 2).

Table 2
Groundwater Gauging Data

Well No.	Top of Casing Elevation (feet above MSL)	Depth to Water (feet below top of casing)	Groundwater Elevation (feet above MSL)
TMW-1	56.46	70.48	-14.02
TMW-2	56.38	69.21	-12.83
TMW-9	52.75	64.30	-11.55

The three groundwater monitoring wells were last sampled by TAIT Environmental Management, Inc., BRC's groundwater monitoring and sampling contractor, in March 2004 (TMW-9) and September 2004 (TMW-1 and TMW-2). In a letter dated 26 October 2004, the LARWQCB approved the use of these data for the final monitoring prior to well destruction. During these sampling events, each well was purged using a submersible pump. Purged water was monitored in the field for electrical conductivity, temperature, and pH. Three borehole volumes of water were purged from each well and placed in Department of Transportation-approved 55-gallon drums. All sampling was conducted in accordance with the LARWQCB-approved Groundwater Monitoring Work Plan 2004 (Haley & Aldrich, 2003).

Upon completion of well purging, a groundwater sample was collected from each well using a disposable bailer with a bottom-emptying device. Three 40-ml VOA vials were filled and placed in a cooler with ice and transported under standard chain of custody procedures to Severn Trent Laboratories, in Santa Ana, California, for analysis. The groundwater samples were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B.

Groundwater Analytical Test Results

Laboratory analytical results of groundwater samples collected in March 2004 (TMW-9), and September 2004 (TMW-1 and TMW-2) for the primary VOCs found at the Site are summarized in Table 3. The laboratory reports are included in the Annual and Semiannual Groundwater Monitoring Reports for the Site, prepared by Haley & Aldrich in April and October 2004, respectively.

Table 3
Groundwater Analytical Results

Analyte	TMW-1 (µg/l)	TMW-2 (µg/l)	TMW-9 (µg/l)
cis-1,2-dichloroethene	<8.3	14,000	8
1,1,1-trichloroethane	<8.3	200 J	<5
1,1-dichloroethene	170	22,000	6.8
Methyl ethyl ketone	<42	170,000	<25
Toluene	<8.3	5,900	<5
Trichloroethene	370	910	500

µg/l = micrograms per liter
J = estimated result. Result is less than Reporting Limit.

Monitoring Well Destruction

WDC Exploration and Wells was contracted by Haley & Aldrich, Inc. to destroy each of the three monitoring wells. The PVC casing, screen, grout, and sand pack were removed by overdrilling with an 8-inch outside diameter (OD) auger to a total depth of approximately one foot below the total depth of each well. The materials recovered during drilling were transferred into a roll-off bin for temporary on-Site storage pending final disposition. Observations made during the respective well overdrilling are noted in the well destruction logs included as Appendix C.

A photoionization detector (PID) was used during fieldwork to monitor the relative concentration of VOCs present in soil cuttings and in the breathing zone. The PID was a RAE Systems MiniRAE Plus, with a 10.6 eV lamp. PID readings did not exceed 0.5 parts per million.

Following the overdrilling, each borehole was grouted with a mixture of approximately three 94-pound bags of Portland cement, and approximately 15 pounds of Volclay grout per 25 gallons of water. During grout placement, a 1.5-inch diameter tremie pipe was placed at the bottom of the auger and grout was placed as the auger was extracted in 20-foot lifts from the final depth to approximately 5 feet below ground surface (bgs). Each borehole was then filled from approximately 5 feet bgs to the surface with one-sack Portland cement slurry. Total grout volumes for each boring are noted in Table 4. Well destruction logs are included as Appendix C.

Table 4
Well Destruction Data

Over-drilling Observations	**TMW-1**	**TMW-2**	**TMW-9**
Original Depth of Well, feet	86	87	86
Depth of overdrilling (feet)	90	90	90
Blank casing removed by drilling (feet)	61	62	61
Screened casing removed (feet)	20	20	30
Auger depth before cuttings observed, feet bgs	0	0	0
Bentonite/grout/sand mix removed, (cubic feet)	30.0	30.3	30.0
Backfilling Observations			
Backfill mixture, Portland (bags) + Volclay grout (bags) + water (gallons)	3+1/3 +25	3+1/3 +25	3+1/3 +25
Total quantity of Portland cement used (bags)	21	30	24
Total Quantity of Volclay grout used (bags)	2.5	3	2.5
Total Quantity grout backfilled into boring (gallons)	350	500	400
Total Quantity grout backfilled into boring (cubic feet)	47	67	53

Waste Storage, Hauling and Disposal

Purge and decontamination water from the groundwater sampling and well destruction activities was stored in five 55-gallon drums. Waste from the well destruction activities (sand pack and sealing materials) was contained in one roll-off bin. One soil sample was collected from the roll-off bin and analyzed for VOCs by EPA Method 8260B, toxicity characteristic leaching procedure for VOCs, and fish bioassay for hazardous waste for waste profiling purposes.

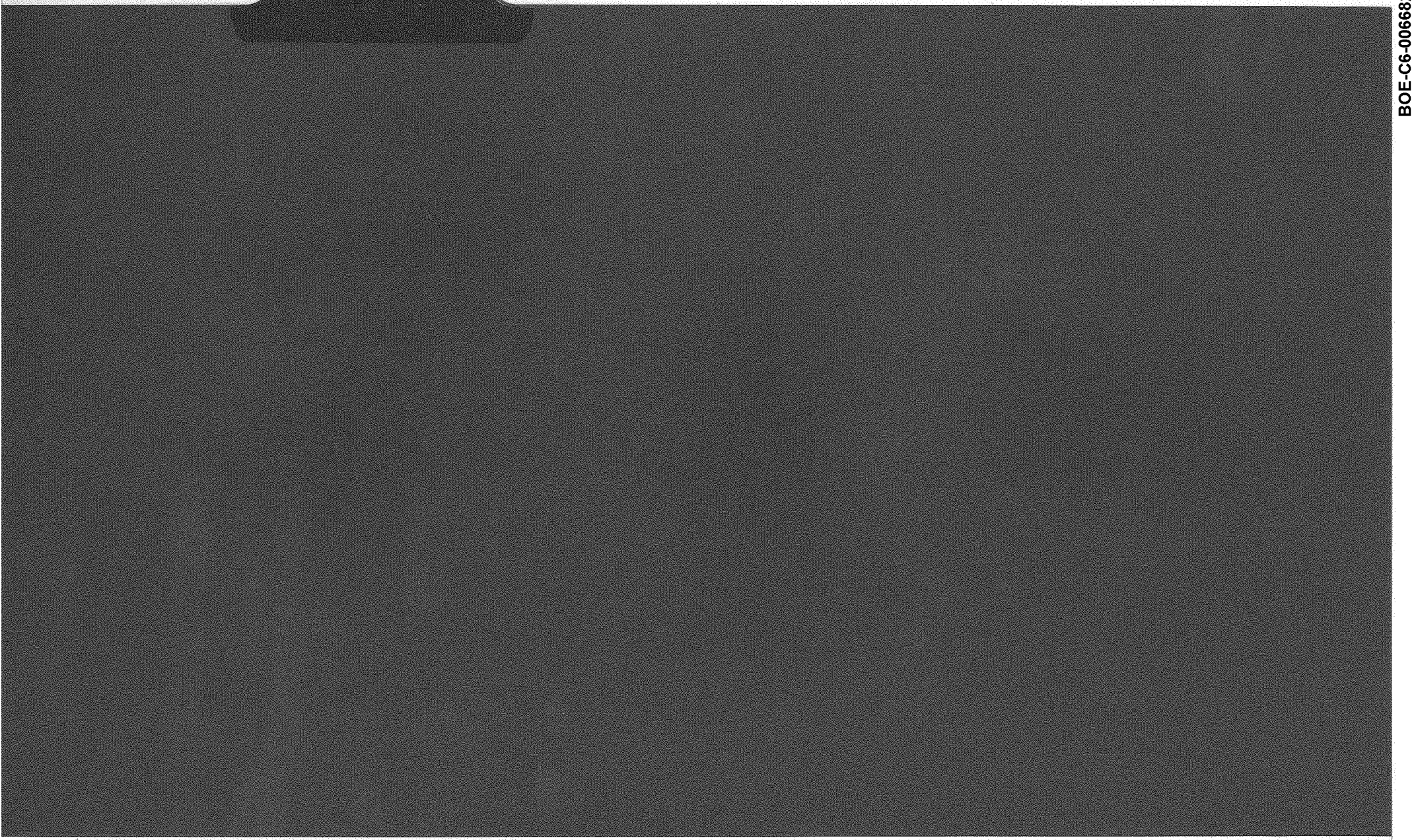
Should you have any questions concerning the contents of this well destruction report or require additional information, please contact either of the undersigned.

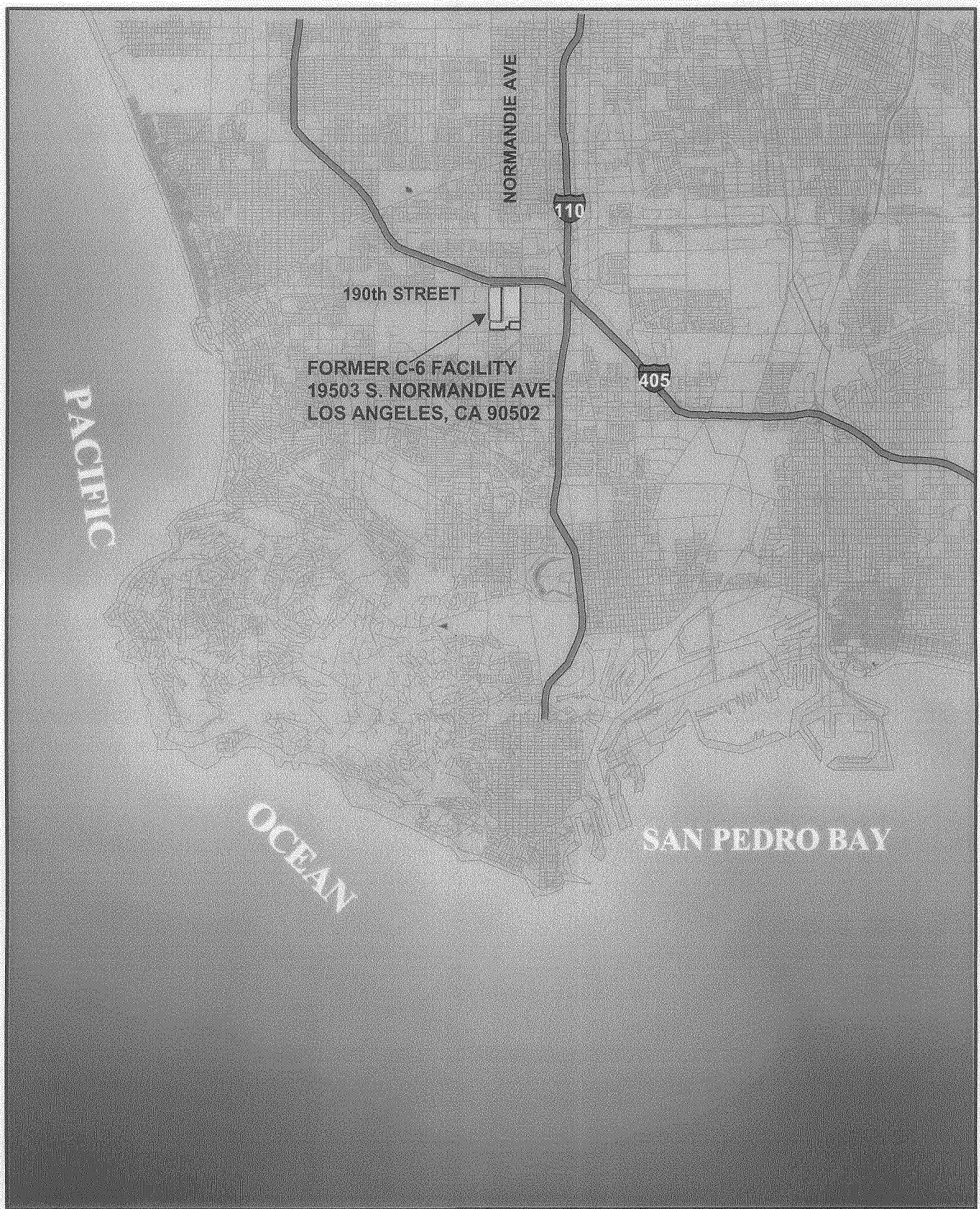
Sincerely yours,
HALEY & ALDRICH, INC.

Paul R. Sones, R.G.
Senior Hydrogeologist

Scott P. Zachary
Project Manager

Attachments:
Figure 1 - Site Location Map
Figure 2 - Abandoned Groundwater Monitoring Wells
Appendix A - Boring and Well Construction Logs
Appendix B - Permit
Appendix C - Well Destruction Logs





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CREATIVE SOLUTIONS FOR CLIENT SUCCESS

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

FIGURE 1

SITE LOCATION MAP

SCALE AS SHOWN

PARCEL A

PARCEL C

WCC-04S

WCC-07S

WCC-12S

WCC-03S

WCC-06S

TMW-08

TMW-07

TMW-02

TMW-09

Proposed Building Footprint

TMW-01

KNOX ST.

TMW-04

MWB005

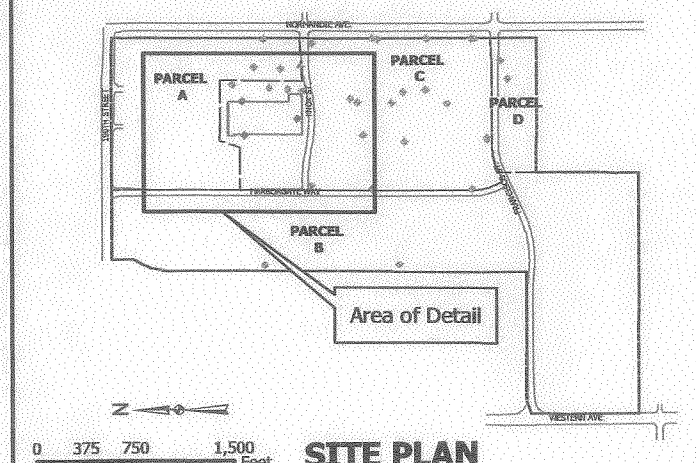
MWB012

MWB013

TMW-15

HARBORGATE WAY

PARCEL B



SITE PLAN

LEGEND

WCC-07S — Groundwater Monitoring Well

TMW-01 — Groundwater Monitoring Well Destroyed

Property Boundary

Parcel Boundary

N

All Locations and Dimensions are Approximate

0 75 150 300 Feet

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UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

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LOS ANGELES, CALIFORNIA

FIGURE 2

GROUNDWATER MONITORING WELLS DESTROYED IN NOVEMBER 2004

SCALE AS SHOWN

NOVEMBER 2004

28882-604

BOE-C6-006831

Appendix A

APPENDIX A

Boring and Well Construction Logs

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 1		**Boring/Well Name** TMW-1	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	**Project Name** Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	**Project Number** 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 61 TO 81 FT	DATE STARTED: 6/28/98	DATE COMPLETED: 6/28/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59 TO 86 FT	DEPTH TO WATER: 66.0 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 56 TO 59 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 8"
			9 12 15							
			14 14 21	0.2				CL	7.5YR 3/3	Fine Sandy CLAY: dark brown, damp, medium stiff to stiff, mottled with CaCO3
			12 17 18	0.8	5			CL	7.5YR 3/3	hard nodules of carbonate up to 1/4", damp, medium stiff
			18 37 40	0.9	10			CL	7.5YR 4/4	Silty CLAY: brown, trace of fine sand, damp, stiff
			9 30 32	1.0	20			SM	7.5YR 4/4	Fine Silty SAND: brown, 60% sand, trace of fine mica, damp, dense
			8 30 33	1.4	30	No Grout				
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-1
Project Name Boeing C-6
Project Number 984006.00

Depth (feet)	Drives	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
35										
40				11 38 40		No Grout		SM	7.5YR 5/3	Fine Silty SAND: brown, 80% sand, trace of fine mica, damp, dense
45										
50				8 40 45	2.0	Blank Casing		SM	7.5YR 4/2	brown, 65% sand, minor clay, very dense
55						Bentonite Seal				
60						Sand Filter				
						Screened Casing				
65				22 43 50	3.9	Depth to Water		SM/ SP &CL	7.5YR 4/2	interbedded with fine sand, moist water at 66 feet
				21 37 50	5.1					interbedded with fine sandy clay
70										
75										
80						Bottom of Screen				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-1

Project Name Boeing C-6

Project Number 984006.00

SAMPLES: Driven	SAMPLES: Recovered	SAMPLES: Collected	SAMPLES: Blows per 6"	SAMPLES: Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80	Bottom of Screen				Fine Silty SAND (continued)
					85	Bottom of Well				Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 1		Boring/Well Name: TMW-2	
DRILLING COMPANY: West Hazmat	DRILLER: Tracy	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM: +1 TO: 62 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 87 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM: 62 TO: 82 FT	DATE STARTED: 6/28/98	DATE COMPLETED: 6/28/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM: 57 TO: 87 FT	DEPTH TO WATER: 67.0 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM: 51 TO: 57 FT	LOGGED BY: J. Knight	
GROUT: No Grout (Temporary Well)	FROM: TO: FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 6"
								CL	2.5Y 4/4	Silty CLAY: olive brown, slightly moist, stiff
					5			ML	10YR 4/6	Clayey SILT: dark yellowish brown, slightly moist, stiff
			17 26 31	100	10				2.5Y 4/4	olive brown, hard
			10 13 30	104	20				2.5Y 5/4	decreasing clay, very stiff
			12 21 31	190	30	No Grout				
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-2
Project Name Boeing C-6
Project Number 984006.00

SAMPLES Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					Clayey SILT (continued)
			5 15 17	183	40					some fine sand, and some thin sand lenses, very stiff
										change noted by driller at 43'
					45	No Grout				
						Blank Casing				
			17 25 32	354	50			SM	2.5Y 5/6	Silty SAND: light olive brown, fine, slightly moist, dense
					55	Bentonite Seal				change noted by driller at 58'
			18 50 50 50 50		60	Sand Filter		ML	2.5Y 5/6	Sandy SILT: light olive brown, fine, moist, hard
						Screened Casing				increasing sand
			20 23 30	2025	65	Depth to Water				very moist, hard, some clayey lenses
			50					SM	2.5Y 4/3	water at 67' Silty SAND: olive brown, fine, wet, with lenses of clayey silt
					70					
					75					
					80	Bottom of Screen				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-2
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Silty CLAY (continued)
						Bottom of Screen				
					85	Bottom of Well				
					90					Boring Terminated at 87 feet.
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 1		Boring/Well Name: TMW-9	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM: +1 TO: 61 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM: 61 TO: 81 FT	DATE STARTED: 6/30/98	DATE COMPLETED: 6/30/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM: 59 TO: 86 FT	DEPTH TO WATER: 66 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM: 56.5 TO: 59 FT	LOGGED BY: J. Knight	
GROUT: No Grout (Temporary Well)	FROM: TO: FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 8"
▨	▨	▨	12 14 21	52.0				ML	10YR 4/6	Clayey SILT: dark yellowish brown, trace of fine sand, slightly moist, very stiff
▨	▨	▨	12 22 40	86.0	5			CL	10YR 3/6	Silty CLAY: dark yellowish brown, some fine sandy lenses, slightly moist, hard
▨	▨	▨	27 30 30	85.7	10				10YR 5/4	yellowish brown, dry, hard
					15					
▨	▨	▨	12 17 23	48.2	20			ML	2.5Y 5/4	Clayey SILT: light olive brown, trace of fine sand, dry, very stiff
					25	No Grout				
▨	▨	▨	21 28 50	51.4	30			ML	2.5Y 5/6	Sandy SILT: light olive brown, fine sand, sligtly moist, hard
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-9
Project Name Boeing C-6
Project Number 984006.00

SAMPLES Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					Sandy SILT (continued)
			20 25 30	74.1	40			SM	2.5Y 5/6	Silty Fine SAND: light olive brown, slightly moist, dense
					45	No Grout				
			23 50	114	50	Blank Casing				increasing silt content, very dense
					55					
					60	Bentonite Seal Sand Filter Screened Casing				
			12 32 50 42 30 32	159	65	Depth to Water		SM	2.5Y 4/3	SAND with Silt: olive brown, fine, very moist, very dense, with silt lenses water at 66'
					70					
					75					
					80	Bottom of Screen				

Well Construction Log

Kennedy/Jenks Consultants

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80	Bottom of Screen				SAND with Silt (continued)
					85	Bottom of Well				
					90					Boring Terminated at 86 feet.
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Boring/Well Name TMW-9

Project Name Boeing C-6

Project Number 984006.00

Appendix B

APPENDIX B

Permit

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS

WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 10/18/2004

___ NEW WELL CONSTRUCTION	X MONITORING	___ HEAT EXCHANGE
___ RECONSTRUCTION OR RENOVATION	___ CATHODIC	___ OTHER (Specify):
X DECOMMISSIONING	___ INJECTION	
___ OTHER:	___ EXTRACTION	

WELL LOCATION

SITE ADDRESS	CITY	ZIP CODE
1451 KNOX STREET	LOS ANGELES (TORRANCE)	90501

Township	Range	Section	Map Book Page/ Grid

NO. OF WELLS IN EACH PARCEL: 3 — Attach site map with well locations: SEE ATTACHED

WELL STRUCTURE

Type and Size of Production Casing	
Sanitary / Annular Sealing Material	
Depth of Sanitary / Annular Seal	
Conductor Casing Seal	

CONSULTANT

Company	HALEY & ALDRICH
Contact Person	SCOTT ZACHARY / PAUL SONES
Address	9040 FRIARS RD, SUITE 220
City, State Zip	SAN DIEGO, CA 92108
Telephone	619.280.9210

OWNER / DRILLER INFORMATION

Well Owner	BOEING REALTY CORPORATION
Address	3855 LAKEWOOD BLVD BLDG 1A MCD001-0097
City / Zip Code	LONG BEACH, CA 90846
Telephone	818.586.6015
Well Driller	WDC EXPLORATION AND WELLS
Address	5566 ARROW HIGHWAY
City / Zip Code	MONTCLAIR, CA 91763
C-57 License No.	283326
Telephone	800.974.2769

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

WELL DECOMMISSIONING

Well Depth log / records	TW-1,2,9 (SEE ATTACHED)
Method of Well Assessment	WELL CONSTRUCTION LOG
Depth and Number of Perforations	SCREENED INTERVAL ~ 60' TO 80' BGS
Type of Perforator Size of Perforations	FACTORY SLOTTED WELL SCREEN
Type and Amount of Sealant	95% PORTLAND CEMENT / 5% BENTONITE GROUT MIXTURE PLACED VIA TREMIE
Method of Upper Seal Pressure Application	OVERDRILL TO REMOVE CASING, TREMIE GROUT WITH PORTLAND/BENTONITE GROUT

DISPOSITION OF PERMIT (Department Use Only)

THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

WORK PLAN APPROVAL
This Approval is Valid for 180 Days

Date: 10-26-04 REHS: Robert Hughes

Conditions:

Remove/Overdrill PVC casing and other materials from top to bottom. Pressure grout from bottom to top with the use of tremie pipe. Variance letter is required if other option will be used

Date	REHS

Date	REHS

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Paul R. Sones

Applicant's Signature

Applicant Name: (PRINT)
Telephone:

76A668-A
H-13 (Rev. 01/2001)

BOE-C6-0066845

Appendix C

APPENDIX C

Well Destruction Logs

HALEY & ALDRICH

WELL DESTRUCTION LOG

Well No.
TMW-1

PROJECT	Boeing Realty Corporation Former C-6 Facility	**H&A FILE NO.**	28882-503
LOCATION	Los Angeles, California	**PROJECT MGR.**	S.P. Zachary
CLIENT	Boeing Realty Corporation	**FIELD REP.**	T. Hammond
CONTRACTOR	WDC Exploration and Wells	**REMOVAL DATE**	11/3/2004

Well Designation	TMW-1
Well Diameter	2-inch I.D. PVC
Decommissioning Technique	Over Drill, Tremie Grout
Depth to Groundwater	70.48
Total Depth of Well	86 feet

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	Portland Cement 282 lbs (3 bags)	Volclay Grout 15 lbs (1/3 bag)	25 gals	50 gals
Manufacturer	California Portland Cement Co.	Colloid Environmental Technologies		
Quantity	21 bags	2.5 bags	175	350

Exlanation of Well Destruction Techniques:

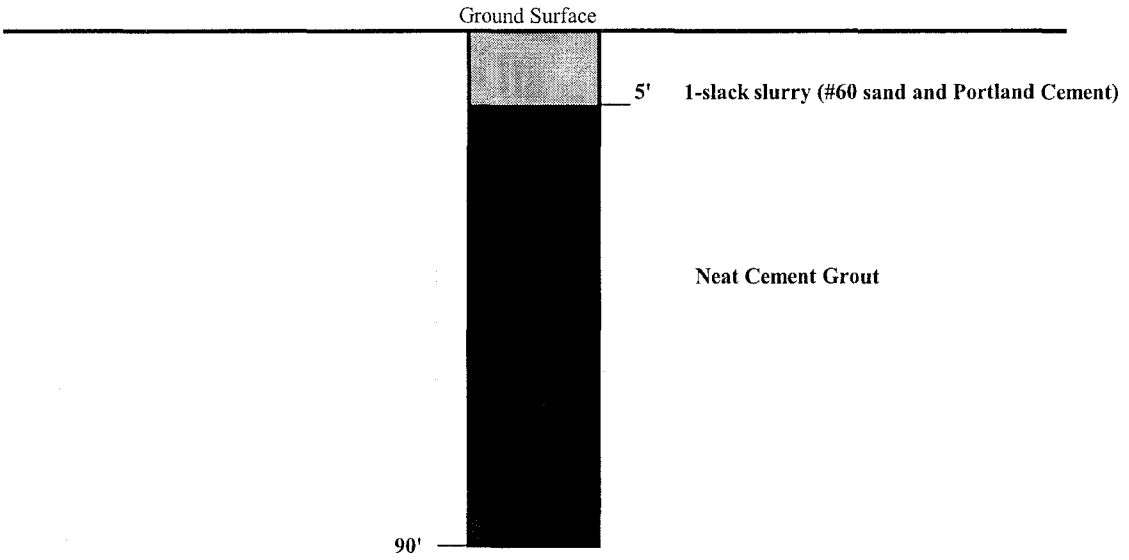
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 3 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using a bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 3 feet below the ground surface.

*1 Bag = 94 Lbs.

Sketch:



COMMENTS: The destruction was performed by over-drilling with 8-inch O.D. hollow-stem augers, and grouting through a 1 1/2-inch tremie pipe placed on the bottom of the borehole through the augers. Drill cuttings consisted of Portland cement grout chips, PVC well casing chips, bentonite seal material, filter pack sand and native soil. Cuttings below approximately 70-feet bgs were water saturated. Approximately 30 cubic feet of bentonite, grout, and sand mix was removed from the boring, and approximately 47 cubic feet of portland cement and concrete was backfilled into the boring.

HALEY & ALDRICH

WELL DESTRUCTION LOG

Well No.
TMW-2

PROJECT	Boeing Realty Corporation Former C-6 Facility	H&A FILE NO.	28882-503
LOCATION	Los Angeles, California	PROJECT MGR.	S.P. Zachary
CLIENT	Boeing Realty Corporation	FIELD REP.	B. Breitenbach
CONTRACTOR	WDC Exploration and Wells	REMOVAL DATE	11/4/2004

Well Designation	TMW-2
Well Diameter	2-inch I.D. PVC
Decommissioning Technique	Over Drill, Tremie Grout
Depth to Groundwater	6 .21
Total Depth of Well	87 feet

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	Portland Cement 282 lbs (3 bags)	Volclay Grout - 15 lbs (1/3 bag)	25 gals	50 gals
Manufacturer	California Portland Cement Co.	Colloid Environmental Technologies		
Quantity	30 bags	3 bags	250	500

*1 Bag = 94 Lbs.

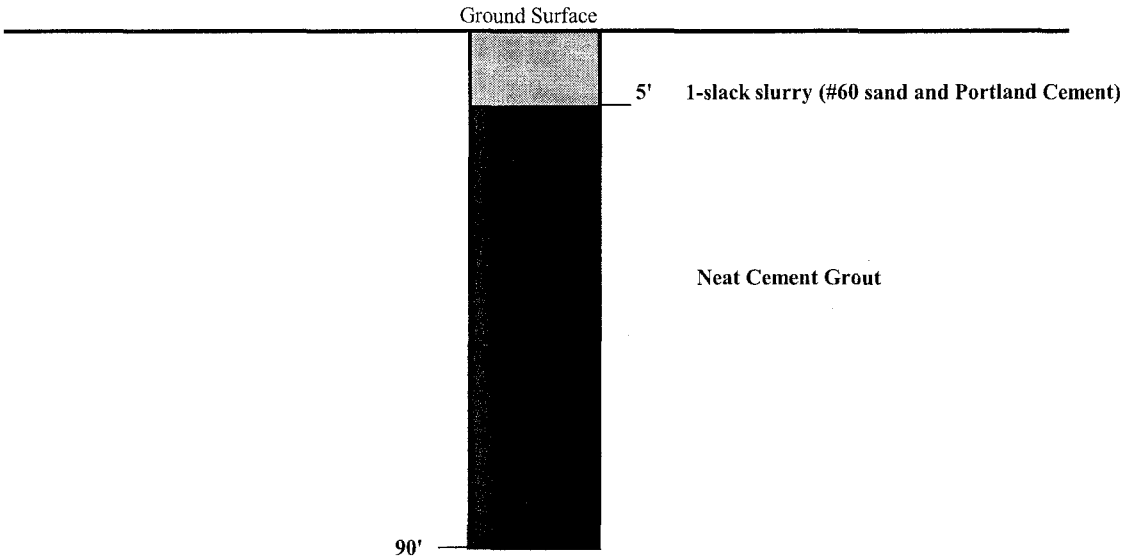
Exlanation of Well Destruction Techniques:

A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 3 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using a bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 3 feet below the ground surface.

Sketch:



COMMENTS: The destruction was performed by over-drilling with 8-inch O.D. hollow-stem augers, and grouting through a 1 1/2-inch tremie pipe placed on the bottom of the borehole through the augers. Drill cuttings consisted of Portland cement grout chips, PVC well casing chips, bentonite seal material, filter pack sand and native soil. Cuttings below approximately 70-feet bgs were water saturated. Approximately 30 cubic feet of bentonite, grout, and sand mix was removed from the boring, and approximately 67 cubic feet of portland cement and concrete was backfilled into the boring.

HALEY & ALDRICH

WELL DESTRUCTION LOG

Well No. TMW-9

PROJECT	Boeing Realty Corporation Former C-6 Facility	H&A FILE NO.	28882-503
LOCATION	Los Angeles, California	PROJECT MGR.	S.P. Zachary
CLIENT	Boeing Realty Corporation	FIELD REP.	B. Breitenbach
CONTRACTOR	WDC Exploration and Wells	REMOVAL DATE	11/4/2004

Well Designation	TMW-
Well Diameter	2-inch I.D. PVC
Decommissioning Technique	Over Drill, Tremie Grout
Depth to Groundwater	64.30
Total Depth of Well	86 feet

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	Portland Cement 282 lbs (3 bags)	Volclay Grout - 15 lbs (1/3 bag)	25 gals	50 gals
Manufacturer	California Portland Cement Co.	Colloid Environmental Technologies		
Quantity	24 bags	2.5 bags	200	400

*1 Bag = 94 Lbs.

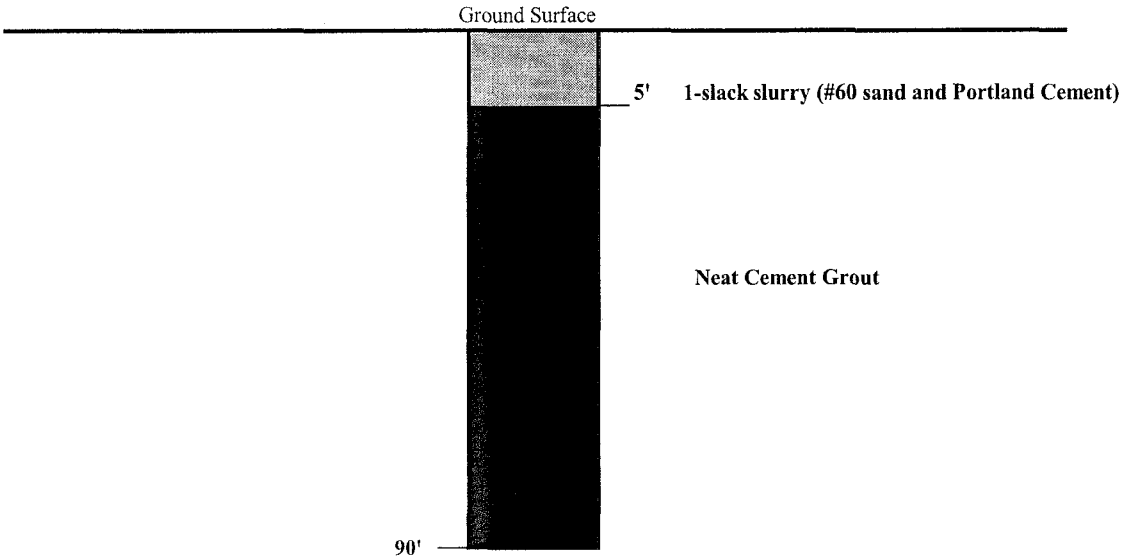
Exlanation of Well Destruction Techniques:

A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 3 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using a bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 3 feet below the ground surface.

Sketch:



COMMENTS: The destruction was performed by over-drilling with 8-inch O.D. hollow-stem augers, and grouting through a 1 1/2-inch tremie pipe placed on the bottom of the borehole through the augers. Drill cuttings consisted of Portland cement grout chips, PVC well casing chips, bentonite seal material, filter pack sand and native soil. Cuttings below approximately 70-feet bgs were water saturated. Approximately 30 cubic feet of bentonite, grout, and sand mix was removed from the boring, and approximately 53 cubic feet of portland cement and concrete was backfilled into the boring.